

IXO

International X-ray Observatory

Science Preparation
for the Decadal Survey

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Latest Estimates of Decadal Survey Timescales

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- **Dates are generally “no earlier than”**
- **August/September 2008** -
Decadal Chairperson announcement anticipated
- **Fall 2008** - Decadal Committee assembly, first meetings
- **December?? 2008** - First subcommittees assemble??
- **January 2009** (Long Beach AAS) - Decadal Committee anticipated to present its schedule to the community
- **January/February 2009** - First subcommittee meetings
- **March/April 2009** - First official reports to subcommittees

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These are the points at which we must have something ready for the decadal committee

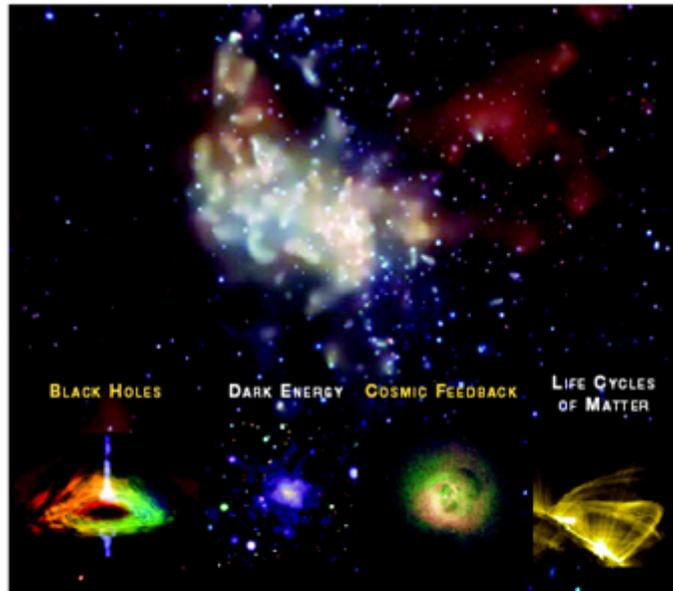
Status: Constellation-X Science Case



NASA/TP-2005-212784



Science with Constellation-X



May 2005

- During Fall 2004, >100 pages of text were written by Facility Science Team members
- The result of this work was a 40-page booklet (published in 2005) outlining the science for the mission
- Since then:
 - The grating and hard X-ray capabilities of the mission have evolved significantly
 - 4 years of scientific progress has occurred
 - We merged with XEUS: new detector (WFI) and a different effective area curve

Con-X FST Science Panels & White Paper Progress

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- **Fall 2007** Con-X science panels re-structured to prepare for the decadal survey : 120+ people (55 institutions) organized into 14 panels
- **February 2008** - Constellation-X Facility Science Team meeting in Boulder, CO (panel chairs reported on key science and plans following telecons)
- **April 2008** - Second telecon with all panel chairs to review key science questions and “poster child” science
- **April - July 2008** - Panels wrote 5-page white papers, hardcopies available here
- **July 2008** - 14 telecons : project discussion of each of the white papers/suggested revisions
- **August 2008** - Revised white papers submitted to project
- **THIS MEETING** - Results of the white papers (the updated Con-X science case) presented. We have successfully:
 - Updated the science case for the scientific progress of the past 4+ years
 - Mission configuration changes (higher spec res in gratings, lower hard X-ray collecting area, calorimeter FOV and resolution) reflected in simulations

Science Panels - Inside the Galaxy



Panel Topic	Chair
Extreme States of Matter in Neutron Stars	Frits Paerels (Columbia)
Accretion Physics in Stellar Systems	Jon Miller (Michigan)
Production and Distribution of the Elements	John Hughes (Rutgers)
MHD Physics in Stellar Environments	Rachel Osten (U. of Md)
Solar System, Planet Formation & Evolution	Eric Feigelson (PSU)

Science Panels - Outside the Galaxy



Panel Topic	Chair
Missing Baryons/WHIM; synergy with UV spectroscopy	Michael Shull (Colorado)
Census of Black Hole Accretion in the Universe	Nancy Levenson (U. of Kentucky)
Evolution of Large Scale Structure in the Universe	Steve Allen (KIPAC/Stanford)
Hot Baryons in Deep Potential Wells	Christine Jones (SAO)
Testing General Relativity and Measuring Black Hole Spin	Chris Reynolds (U. of Md)
Supernova/Stellar Feedback	David Strickland (JHU)
AGN Feedback: Outflows & Jets	Andy Fabian (Cambridge)
The high-z Universe, Re-ionization & Synergy with JWST “First Light” Science	Niel Brandt (PSU)

Science Panels - Cross-Panel Working Group on Diagnostics



Panel Topic	Chair
Plasma Diagnostics and Atomic Astrophysics	Nancy Brickhouse (SAO)

State of the Science Case



- **Thanks to our panel chairs, the science case is in very good shape : the text for the science case is very good**
- **There is some additional work to be done on simulations and figures, work that will require accurate definition of the IXO instrument suite. We also need to add the WFI science to the science case.**
- **The burden is now on the project team to:**
 - **Provide IXO response matrices**
 - **Produce outlines of products needed for the decadal**
 - **Produce key figure list for updated simulations**

Next Steps (To be discussed!)



BLACK = CERTAIN EVENT **GREEN = POSSIBILITY**

- **September 20, 2008** Next IXO Coordination Group meeting
 - Anticipated agreement on response matrices for decadal survey preparations
- **October/November 2008** - Produce booklet/pamphlet on IXO based on science white papers
- **December 1 2008** - Print deadline for any materials to be presented at the January AAS
- **January 2009** - Poster presentation/town hall at the January AAS to present science case to the community
- **February/March 2009??** - decadal committee requests material from us
- **March/April 2009** - tiger-team effort to respond to decadal committee requests (note: we may call your cell phone at 10PM on a Friday)